6. CUMULATIVE CONDITIONS

This chapter presents the results of the level of service calculations under Cumulative Conditions with and without the project. Cumulative No Project Conditions are defined as existing volumes plus traffic generated by approved and pending developments in the study area. Cumulative Plus Project Conditions are defined as Cumulative No Project Conditions plus traffic generated by the proposed project.

CUMULATIVE TRAFFIC ESTIMATES

A list of pending developments in the study area was obtained from City of Morgan Hill Planning staff. Appendix C contains a list of pending projects and their trip generation estimates. Trips from the approved and pending projects were added to existing volumes to represent Cumulative No Project Conditions as shown on Figures 12a and 12b. Traffic associated with the proposed project was added to Cumulative No Project volumes to represent Cumulative Plus Project volumes as shown on Figures 13a and 13b.

CUMULATIVE ROADWAY IMPROVEMENTS

Improvements were identified by City staff at two study intersections to be included under the Cumulative Conditions scenario. A second westbound left-turn lane on Cochrane Road at Butterfield Boulevard will be constructed by the City. At the Cochrane Road/Sutter Boulevard intersection, the City will (1) convert the right-turn lane on the eastbound approach to a shared through/right-turn lane and (2) convert the northbound Sutter Boulevard through lane on the approach to Cochrane Road to a shared through/right-turn lane.

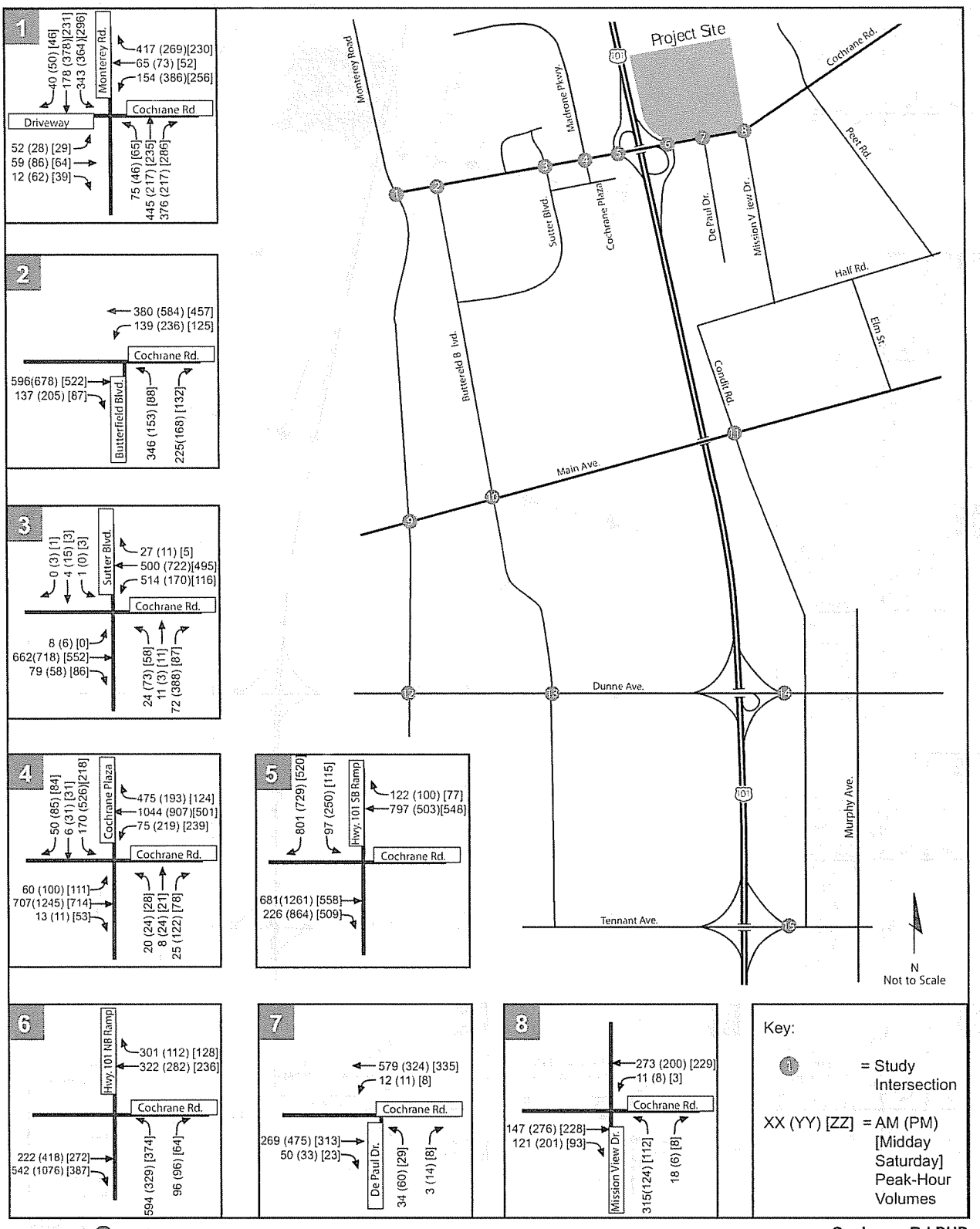
CUMULATIVE INTERSECTION LEVELS OF SERVICE

Intersection level of service calculations were conducted under Cumulative No Project and Cumulative Plus Project Conditions. The results are presented in Table 12. The corresponding LOS calculation sheets are included in Appendix B.

The results under Cumulative Conditions are similar to the results under Project Conditions. The proposed project would result in unacceptable operations (LOS D or worse) at the following two intersections:

- Cochrane Road/Mission View Drive
- Dunne Avenue/Monterey Road

It should be noted that the Dunne Avenue/Monterey Road intersection is expected to operate at an unacceptable level of service under both Cumulative No Project and Cumulative Plus Project Conditions. The remaining intersections are projected to operate at acceptable levels of service (LOS D+ or better) during all peak hours.



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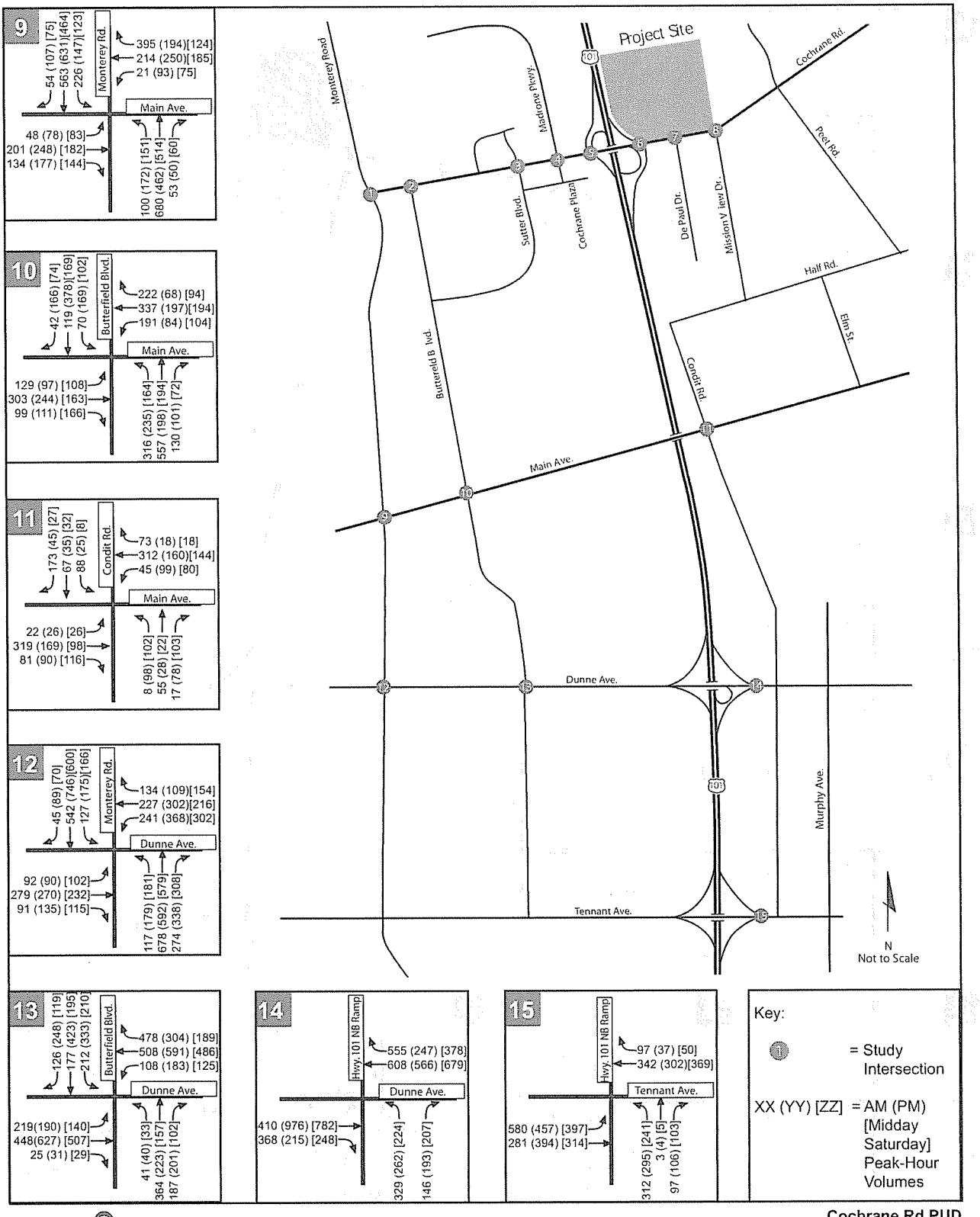
CUMULATIVE NO PROJECT INTERSECTION PEAK-HOUR VOLUMES

Figure 12A



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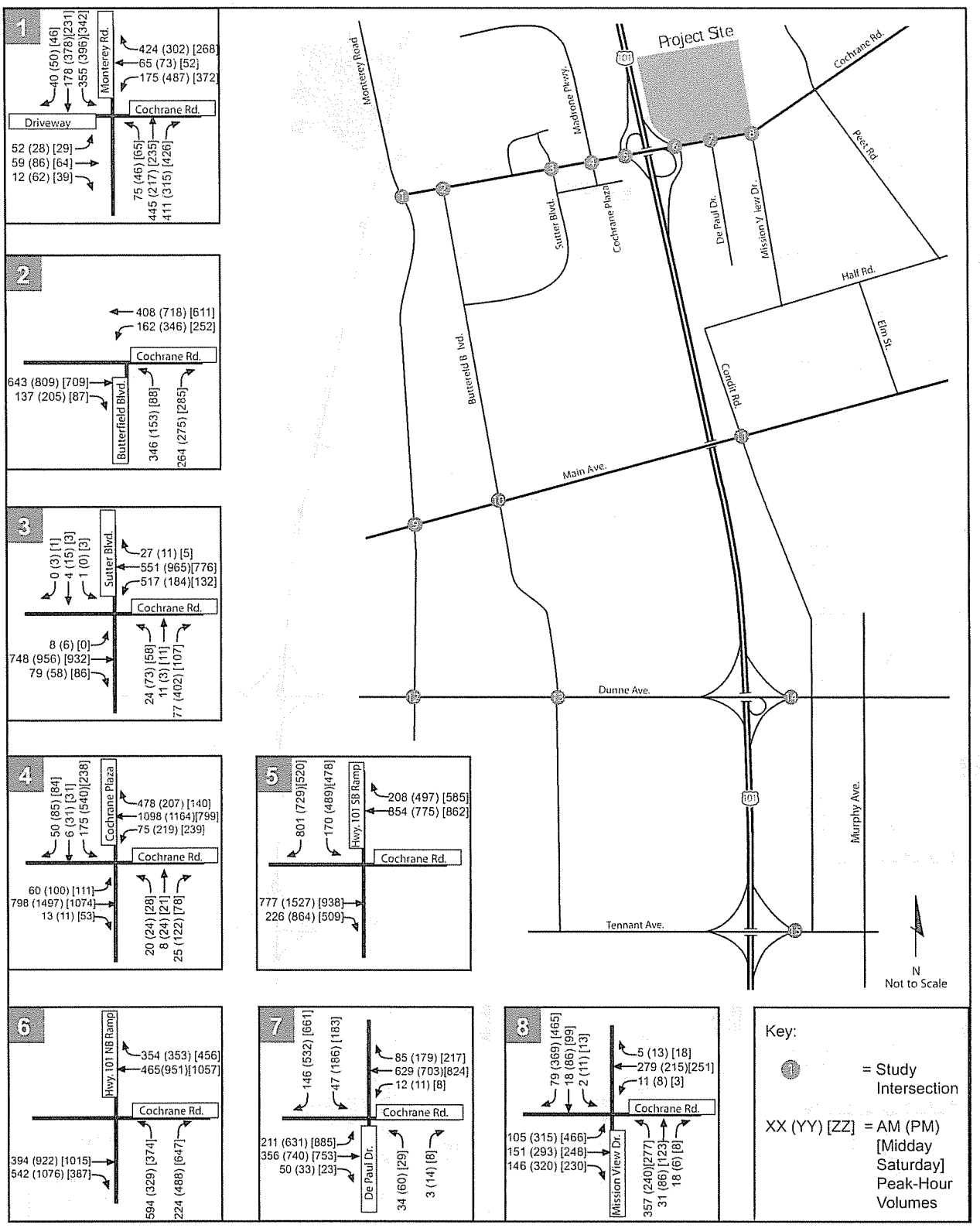
CUMULATIVE NO PROJECT INTERSECTION PEAK-HOUR VOLUMES

Figure 12B



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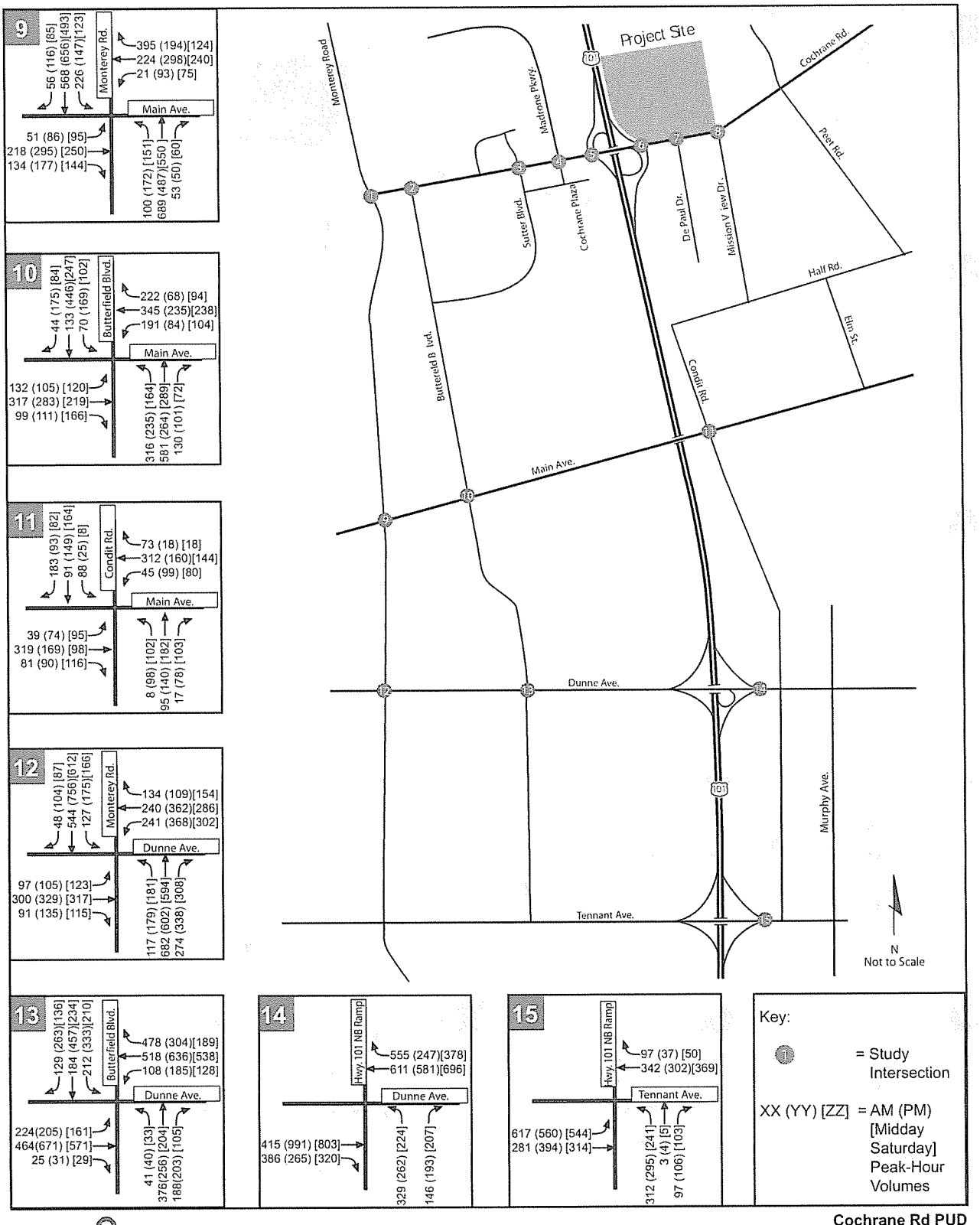
CUMULATIVE PLUS PROJECT INTERSECTION PEAK-HOUR VOLUMES

Figure 13A



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CUMULATIVE PLUS PROJECT INTERSECTION PEAK-HOUR VOLUMES

Figure 13B

TABLE 12
CUMULATIVE NO PROJECT AND CUMULATIVE PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour[1]	Cumulative No Project		Cumulative Plus Project			
		Delay[2]	LOS[3]	Delay	LOS	Δ in Crit. V/C[4]	Δ in Crit. Delay[5]
1. Cochrane Road/Monterey Road	AM	20.9	C+	21.0	C+	+0.012	+0.1
	PM	25.7	C	25.6	C	+0.045	-0.0
	SAT	24.5	C	26.8	C	+0.126	+0.5
2. Cochrane Road/Butterfield Boulevard	AM	12.6	B	12.8	B	+0.023	+0.3
	PM	11.0	B+	12.1	B	+0.081	+1.3
	SAT	10.0	B+	12.2	B	+0.103	+2.6
3. Cochrane Road/Sutter Boulevard	AM	20.6	C+	20.6	C+	+0.017	+0.2
	PM	15.3	B	16.3	B	+0.081	+1.2
	SAT	13.6	B	13.2	B	+0.063	-0.9
4. Cochrane Road/Cochrane Plaza	AM	18.6	B-	18.5	B-	+0.018	+0.2
	PM	27.6	C	26.6	C	+0.081	-0.1
	SAT	24.5	C	22.7	C+	+0.078	-1.0
5. Cochrane Road/SB US 101 Ramp	AM	13.6	B	14.5	B	+0.063	+0.9
	PM	15.2	B	27.4	C	+0.230	+20.5
	SAT	20.2	C+	26.3	C	+0.338	+7.1
6. Cochrane Road/NB US 101 Ramp	AM	11.8	B+	14.0	B	+0.165	+2.8
	PM	11.1	B+	31.6	C	+0.589	+25.6
	SAT	11.1	B+	75.6	E-	+0.841	+80.2
7. Cochrane Road/DePaul Drive[6]	AM	6.1	A	18.8	B-	+0.200	+10.3
	PM	7.7	A	22.4	C+	+0.416	+17.6
	SAT	6.6	A	28.4	C	+0.608	+29.4
8. Cochrane Road/Mission View Drive[7]	AM	18.7	C	**>100**	**F**	N/A	N/A
	PM	13.7	B	**>100**	**F**	N/A	N/A
	SAT	13.0	B	**>100**	**F**	N/A	N/A
9. Main Avenue/Monterey Road	AM	27.8	C	27.8	C	+0.003	+0.0
	PM	24.8	C	25.3	C	+0.040	+0.8
	SAT	22.3	C+	23.1	C	+0.069	+2.0
10. Main Avenue/Butterfield Boulevard	AM	38.3	D+	38.5	D+	+0.012	+0.4
	PM	37.7	D+	37.9	D+	+0.043	+0.5
	SAT	32.1	C-	32.4	C-	+0.058	+1.0
11. Main Avenue/Condit Road	AM	12.4	B	12.9	B	+0.022	+0.5
	PM	9.8	A	11.5	B+	+0.092	+2.4
	SAT	9.9	A	11.3	B+	+0.099	+2.0
12. Dunne Avenue/Monterey Road	AM	38.3	D+	38.6	D+	+0.007	+0.2
	PM	40.6	D	41.7	D	+0.025	+0.8
	SAT	31.7	C	32.6	C-	+0.045	+0.7
13. Dunne Avenue/Butterfield Boulevard	AM	34.9	C-	35.1	D+	+0.004	+0.3
	PM	37.9	D+	38.3	D+	+0.016	-2.5
	SAT	30.3	C	30.6	C	+0.024	-0.2
14. Dunne Avenue/ NB US 101 Ramp	AM	15.5	B	15.5	B	+0.001	-0.0
	PM	12.7	B	12.7	B	+0.003	-0.1
	SAT	9.8	A	9.7	A	+0.005	-0.1
15. Tennant Avenue/NB US 101 Ramp	AM	26.3	C	27.7	C	+0.025	+1.7
	PM	22.3	C+	24.1	C	+0.068	+2.2
	SAT	20.2	C+	23.2	C	+0.099	+3.5

Notes:
1 AM = Morning peak-hour, PM = Evening peak-hour, SAT = Saturday midday peak-hour.
2 Whole intersection weighted average control delay expressed in seconds per vehicle for signalized intersections using methodology described in the *2000 Highway Capacity Manual*, with adjusted saturation flow rates to reflect Santa Clara County Conditions. For two-way stop controlled unsignalized intersections, total control delay for the worst movement/approach, expressed in seconds per vehicle, is presented. LOS calculations conducted using the TRAFFIX level of service analysis software package.
3 LOS = Level of service
4 Change in critical movement delay between Background and Project Conditions. A decrease in the critical delay indicates project trips were added to movements with low delays thus causing a decrease in the overall critical delay.
5 Change in the critical volume-to-capacity ratio (V/C) between Background and Project Conditions.
6 Intersection is analyzed as signalized under Cumulative No Project Conditions, and Cumulative with Project Conditions.
7 Intersection is analyzed as unsignalized under Cumulative No Project, and Cumulative Plus Project Conditions.
Significant impacts are designated in **bold** type.

CUMULATIVE IMPACTS

Based on the impact criteria presented in the Chapter 4, the proposed project would result in a significant impact at the Cochrane Road/Mission View Drive intersection. Although the operations at the Dunne Avenue/Monterey Road intersection are unacceptable (LOS D), the increase in critical delay is less than four seconds; thus there would be no impact.

The capacity of the freeway is not expected to change under Cumulative Conditions (i.e., no improvements are planned or programmed for this segment of the freeway which would increase its capacity under Cumulative Conditions). Therefore, the impacts identified under Project Conditions would not be diminished under Cumulative Conditions. The results of the freeway level of service analysis indicate that the proposed project would add 87 trips to the segment of northbound US 101 between Tennant Avenue and Dunne Avenue, where one percent of capacity is 69 vehicles. This results in a significant cumulative impact on the segment during the AM peak hour.

CUMULATIVE MITIGATION MEASURES

The mitigation measures (traffic signal and lane improvements) identified in Chapter 4 (Project Conditions) for the Cochrane Road/Mission View Drive intersection would provide acceptable operations (LOS D+ or better).

The recommended mitigation for cumulative impacts to the freeway segments is the project's participation in the Countywide Deficiency Plan (CDP). According the CMP TIA guidelines, pending adoption of the CDP, if a project causes a transportation impact that cannot be reduced to a less-than-significant level, the Lead Agency (the City of Morgan Hill) must implement, or require the project's sponsor to implement, the "Immediate Actions" list in Appendix D of the Draft Countywide Deficiency Plan (see Appendix H of this report) as part of the project's approval. As noted under Project Conditions, even after implementation of mitigation measures, this impact would still be **significant and unavoidable**.